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EXAMINER

ELVE, MARIA ALEXANDRA

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/714,328
Filing Date: November 14, 2003
Appellant(s): PRUCHER, BRYAN

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For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/3/07 appealing from the Office action mailed 1/10/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The amendment after final rejection filed on 4/17/06 has not been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,004,498	Shimamura et al.	4-1991
4,315,777	Nadkarni et al.	2-1982
5,685,357	Kato et al.	11-1997
5,041,711	Prucher	8-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 & 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimamura et al. (USPN 5,004,498).

Shimamura et al. discloses an electrode, which is made of dispersion strengthened copper alloy. The copper alloy is placed in a reducing or inert atmosphere and sintered. Sintering and reducing temperatures are not higher than 1065°C (approx. 1940°F). Hydrogen may be used in the furnace environment. The sinter may be placed in a mold prior to sintering or the sinter powder may be hot pressed during sintering. Alloying elements such as tungsten, cadmium, chromium or zirconium are

Art Unit: 1725

added to the sinter. Secondary processing such as thermal treatments or plastic deformation may follow the sintering operation. (abstract, figures, col. 1, lines 15-20, col. 2, lines 42-58, col. 3, lines 10-15, col. 5, lines 40-45, col. 6, lines 3-38, col. 7, lines 40-68, col. 8, lines 5-30, col. 10, lines 28-35, col. 17, lines 14-45, col. 18, lines 35-40)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-11, 13 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamura et al. as stated above and further in view of Nadkarni et al. (USPN 4,315,777).

Shimamura et al. does not teach the pressure and density of the sinter.

Nadkarni et al. discloses the sintering of a copper alloy. Pressures of 32,000 to 75,000 psi are used yielding theoretical densities of about 80-90%. (abstract, figures, col. 1, 3, 8-10)

It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the density and pressure, as taught by Nadkarni et al. in the Shimamura et al. system because these are merely processing parameters.

Claims 16 & 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamura et al. and Nadkarni et al. as stated above and further in view of Kato et al. (USPN 5,685,357).

Shimamura et al. and Nadkarni et al. do not teach thixo-molding (semi-solid forming).

Kato et al. discloses forming metallic particle feed material in an injection molding machine. Parts are formed by thixo-molding. This is used to form a variety of metallic parts.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use thixo-molding, as taught by Kato et al. in the Shimamura et al. and Nadkarni et al. system because this is merely a type of plastic forming.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamura et al. and Nadkarni et al. as stated above and further in view of Prucher (USPN 5,041,711).

Shimamura et al. and Nadkarni et al. do not teach the use of silver in the sinter.

Prucher discloses a spot welding electrode, which uses silver in the sinter.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use silver, as taught by Prucher in the Shimamura et al. and Nadkarni et al. system because of the enhanced electrical properties of the electrode.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamura et al., Nadkarni et al., Kato et al. and Prucher as stated above and further in view of the following.

Shimamura et al. and Nadkarni et al. do not teach thixo-molding (semi-solid forming) or the use of silver in the sinter.

Kato et al. discloses forming metallic particle feed material in an injection molding machine. Parts are formed by thixo-molding. This is used for form a variety of metallic parts. Prucher discloses a spot welding electrode, which uses silver in the sinter.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use thixo-molding, as taught by Kato et al. and the use of silver as taught by Prucher in the Shimamura et al. and Nadkarni et al. system because of the enhanced product; both mechanically and electrically.

(10) Response to Argument

35 USC 102 (b):

Applicant argues that the reference discloses only plastic deformation with no subsequent machining. The examiner respectfully disagrees because the "*dispersion strengthened copper alloy is subjected to plastic deformation or machining, or, if necessary, subjected to a secondary process and/or thermal treatment, and then to plastic deformation or machining*" (col. 10, lines 28-35). Thus, the dispersion strengthened copper alloy may be subjected to plastic deformation and then subjected

to a secondary process, which could be thermal, further plastic deformation and/or machining. Hence, the examiner respectfully submits that the Shimamura et al. does in fact anticipate the claim(s).

35 USC 103 (a):

Applicant argues that there is no suggestion to combine the references. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 83 D.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, (claims 8-11, 13 & 17) Shimamura et al. is directed to a dispersion strengthened copper alloy having a high electrical conductivity, which is formed into a spot welding electrode. In addition, the reference teaches sintering, alloying, plastic deformation, thermal treatments, machining and so forth. Nadkarni et al. is directed to a dispersion strengthened copper alloy, which is sintered under pressure to various theoretical densities. The fact that both references disclose the sintering of a dispersion strengthened copper alloy is a strong motivation to combine.

In this case, (claims 16 & 19-20) Shimamura et al. and Nadkarni et al. have been discussed above. The other reference, Kato et al. is directed to the formation of shaped

Art Unit: 1725

metal part whereby metallic feeds are in the form of grains or columns (functional equivalent to metallic sintering particles). One of the embodiments uses a copper alloy. The metallic feed is compressed into an injection molding apparatus, which is then heated, and a metallic part is formed. This formation may be known as thixo-molding. This is a type of plastic formation or deformation. Thus the motivation to combine the references.

In this case, (claim 18) Shimamura et al. and Nadkarni et al. have been discussed above. The other reference, Prucher discloses *"a spot welding electrode which is constructed of a high conductive material such as copper... Additional elements or materials, may be added to the copper for strength and enhanced thermal conductivity.... Ordinarily, the insert and the electrode are integrally fabricated using powdered metallurgical techniques... During the sintering process, the lower melting point alloying agent in the insert, which is silver in the silver-tungsten alloy used in the preferred embodiment of this invention, combines with the encapsulating copper alloy to form a an integral fused assembly"*, (i.e. spot welding electrode). Thus the references are copper strengthened and sintered, spot welding electrodes.

In this case, (claim 21) Shimamura et al., Nadkarni et al., Kato et al. and Prucher have been discussed above.

Applicant argues that Nadkarni et al. does not teach forming a final product by cold forming or semi-solid molding. The examiner respectfully notes that Nadkarni et al. is a secondary reference. The primary reference is Shimamura et al., which teaches

Art Unit: 1725

plastic deformation, which encompasses the subsets of cold forming or semi-solid molding. Nadkarni et al., a secondary reference, was relied upon to teach pressures and densities of sinters. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that Prucher in no manner teaches electrode formation by the process of instant claims. The examiner respectfully notes that Prucher is a secondary reference used in combination with Shimamura et al. and Nadkarni et al. Shimamura et al. is directed to a dispersion strengthened copper alloy having a high electrical conductivity which is formed (*copper dispersion strengthened alloy is pressed (compacted), sintered in a reducing or inert atmosphere and then the "dispersion strengthened copper alloy is subjected to plastic deformation or machining, or, if necessary, subjected to a secondary process and/or thermal treatment, and then to plastic deformation or machining"* (col. 10, lines 28-35)) into a spot welding electrode. Nadkarni et al. is directed to a dispersion strengthened copper alloy, which is sintered under pressure to various theoretical densities. Prucher discloses "a spot welding electrode which is constructed of a high conductive material such as copper... Additional elements or materials, may be added to the copper for strength and enhanced thermal conductivity.... Ordinarily, the insert and the electrode are integrally

fabricated using powdered metallurgical techniques... During the sintering process, the lower melting point alloying agent in the insert, which is silver in the silver-tungsten alloy used in the preferred embodiment of this invention, combines with the encapsulating copper alloy to form a an integral fused assembly", (i.e. spot welding electrode).

Prucher was used to teach the presence of silver in a copper alloyed spot welding electrode and Shimamura et al. teaches the formation of the copper alloy dispersion strengthened spot weld electrode. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In addition, see the above discussions with respect to applicant's motivation-to-combine arguments.

Applicant argues that their invention discloses silver in an amount sufficient to change a desired physical property of the pre-form. The examiner respectfully notes that no physical units are given for the silver in instant claims. Furthermore, the prior art discloses the formation of a copper alloy dispersion strengthened spot weld electrode containing silver, which has been sintered and plastically deformed.

Applicant argues that instant claims use silver in the pre-form, which is not disclosed by the prior art. The examiner respectfully disagrees because Shimamura et al. discloses "a spot weld electrode, which is made of dispersion strengthened copper

Art Unit: 1725

alloy. Alloying elements such as tungsten, cadmium, chromium or zirconium are added to the sinter". These alloying elements are added prior to sintering and hence are in the pre-form. Prucher discloses "a spot welding electrode which is constructed of a high conductive material such as copper... Additional elements or materials may be added to the copper for strength and enhanced thermal conductivity.... Ordinarily, the insert and the electrode are integrally fabricated using powdered metallurgical techniques...

During the sintering process, the lower melting point alloying agent in the insert, which is silver in the silver-tungsten alloy used in the preferred embodiment of this invention, combines with the encapsulating copper alloy to form a an integral fused assembly".

The silver, which is taught by Prucher, is used (combined) as an alloy element in the Shimamura et al. pre-form. Thus, the addition of the silver in the preform is taught by the combination of references.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgement on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time of the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that Shimamura et al. and Nadkarni et al. do not teach thixo-molding and do not teach the presence of silver. The examiner respectfully disagrees because the applicant has taken the rejection out of context. Kato et al. and Prucher in fact teach these limitations. Claims 16 & 19-20 are rejected over Shimamura et al., Nadkarni et al, and Kato et al. (Kato et al. discloses thixo-molding which is a specific subset of plastic deformation). Claim 18 is rejected over Shimamura et al., Nadkarni et al, and Prucher (Prucher teaches the presence of silver in a copper spot weld electrode). Claim 21 is rejected over Shimamura et al., Nadkarni et al, Kato et al. and Prucher (Kato et al. teaches thixo-molding and Prucher teaches silver; see above discussion). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In addition, see the above discussions with respect to applicant's motivation-to-combine arguments.

Applicant argues that Kato et al. does not teach the presence of silver. The examiner respectfully notes that the rejections are being taken out of context. Kato et al. is a secondary reference, which is used to teach thixo-molding not the presence of silver. Prucher is used for that purpose. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re*

Art Unit: 1725

Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In addition, see the above discussions with respect to applicant's motivation-to-combine arguments.

In response of applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).


Art Unit: 1725

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,




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Primary Examiner 1725

Conferees:



Gregory Mills
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